

PATENT SPECIFICATION

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(54) SEATS

(71) We, FORD MOTOR COMPANY LIMITED, of 88 Regent Street, London W.1., a British Company, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to seats such as motor vehicle, household or office seats.

According to the present invention a seat comprises a frame moulded from plastics material and at least one resilient suspension member extending across the frame and secured to the frame by having portions of itself embedded in the plastics material of the frame.

According to the present invention a method of manufacturing a seat comprises moulding a frame from a plastics material with portions of at least one resilient suspension member embedded in the frame.

How the invention may be carried out will now be described, by way of example only, with reference to the accompanying drawings in which:—

Figure 1 is a plan view of a first embodiment of the invention;

Figure 2 is a cross-sectional view of the mould used to manufacture the seat of Figure 1;

Figure 3 is a sectional view of a second embodiment of the invention;

Figure 4 is a fragmentary perspective view of a third embodiment of the invention;

Figure 5 is a fragmentary sectional view of Figure 4;

Figure 6 is a plan view of Figure 5 with the mould open;

Figures 7 to 9 are views similar to Figures 4 to 6 respectively of a fourth embodiment of the invention; and

Figures 10 to 12 are views similar to Figures 4 to 6 respectively of a fifth embodiment of the invention.

Figures 1—2.

A seat comprises a foamed rigid plastics

frame 1 in which is embedded the periphery of a resilient diaphragm 2. The foamed plastics of the frame passes through apertures 3 in the diaphragm 2 to secure the periphery of the diaphragm 2 in the frame 1. In this embodiment the frame is moulded from a cast urethane which cures at room temperature i.e. 20°C. The diaphragm 2 may comprise any suitable material such as synthetic or natural rubber or a plastics.

Figure 2 illustrates the method of manufacturing the seat of Figure 1.

The diaphragm 2 is assembled in a mould comprising two halves 4a and 4b which together define a substantially annular mould cavity 5 within which the periphery of the diaphragm 2 is located. The mould halves 4a, 4b clamp the main part of the diaphragm 2 between them.

The plastics material of the frame could be cast, or injected into the mould or the components of the material of the frame could be introduced into and mixed in the mould cavity. In any event mould cavity 5 is filled with the material to form the frame, the material passing through the apertures 3 to secure the periphery of the diaphragm 2 to the frame 1. The material of the frame 1 is allowed to cure and the two halves 4a, 4b of the mould are then split to allow removal of the seat.

Figure 3.

This shows a seat which also has a backrest 6 comprising a second diaphragm 7 with its periphery embedded in a second frame 8. The frame 8 is in fact integral with the frame 1 where the backrest joins the seat already shown in Figures 1 and 2.

Figures 4 to 6.

In this embodiment the suspension members comprise a plurality of resilient webs 9 in place of the diaphragm 2 of the embodiments of Figures 1 to 3.

Each web 9 has its ends doubled back on themselves and stapled or otherwise secured

at 10 to form a loop containing an anchorage member 11 in the form of a bar 12 having an eye 13 on each of its ends.

5 The seat is manufactured in essentially the same way as the embodiment of Figures 1 and 2 but in this case the anchorage members 11 are embedded in the frame 1 with the material of the frame passing through the eyes 13 to secure the ends of the webs 9 in the frame. The anchorage members 11 are held in position in the mould cavity 5 by projections 15 and 16 on the mould halves 4a and 4b respectively.

Figures 7 to 9.

15 In this embodiment resilient cords or "boot laces" 17 are employed as the suspension members and pass around pegs 18 carried by the mould half 4b prior to the introduction of the material of the frame 1 into the mould cavity 5. When the frame material is introduced into the mould it embeds the looped ends of the cords 17 and thus secures the cords 17 in the frame 1.

Figures 10 to 12.

25 This embodiment employs a resilient diaphragm 19 similar to the diaphragm of Figures 1 and 2. However, in this embodiment the periphery of the diaphragm 19 has two substantially mutually parallel spaced apart ribs 20 and 21 between which apertures 22 are formed. The diaphragm 19 is located in the mould by projections 23 carried by the mould half 4b engaging in the apertures 22. The material of the frame 1 moulds around the ribs 20 and 21 to secure the periphery of the diaphragm 19 in the frame 1.

35 Arrangements other than those described above may be used to secure the resilient suspension members in the frame. Furthermore any suitable mutually compatible materials may be used for the frame and the suspension member or members.

45 In each of the embodiments described above the suspension member is held in tension by the mould during the moulding process so that a desired tension in the suspension of members of the finished seat is produced.

WHAT WE CLAIM IS:—

50 1). A seat which comprises a frame moulded from plastics material and at least one resilient suspension member extending across the

frame and secured to the frame by having portions of itself embedded in the plastics material of the frame.

2). A seat as claimed in claim 1 in which the suspension member comprises a resilient diaphragm. 55

3). A seat as claimed in claim 2 in which the diaphragm has a plurality of apertures around its periphery, the periphery being embedded in the frame such that the material of the frame passes through the apertures to hold the periphery of the diaphragm in the frame. 60

4). A seat as claimed in claim 1 in which there are a plurality of suspension members each one of which comprises a web. 65

5). A seat as claimed in claim 1 in which the suspension member comprises a resilient cord. 70

6). A seat as claimed in any previous claim in which the frame comprises a rigid foam plastics material.

7). A seat as claimed in claim 6 in which the foam plastics material is a cast urethane which cures at room temperature. 75

8). A seat as claimed in any previous claim in which the or each suspension member comprises a synthetic or natural rubber or plastics. 80

9). A method of manufacturing a seat, the method including the following steps:—

a) assembling one or more resilient suspension members in a mould so that a portion or portions of each member is located in a mould cavity; and 85

b) introducing a plastics material into the mould cavity to embed the said each portion therein and to form a frame.

10). A method of manufacturing a seat, the method comprises moulding a frame from a plastics material with portions of at least one resilient suspension member embedded in the frame. 90

11). A seat substantially as hereinbefore described with reference to and as shown in Figures 1 and 2, or Figure 3, or Figures 4 to 6, or Figures 7 to 9 or Figures 10 to 12 of the accompanying drawings. 95

12). A seat manufactured by the method substantially as hereinbefore described with reference to the accompanying drawings. 100

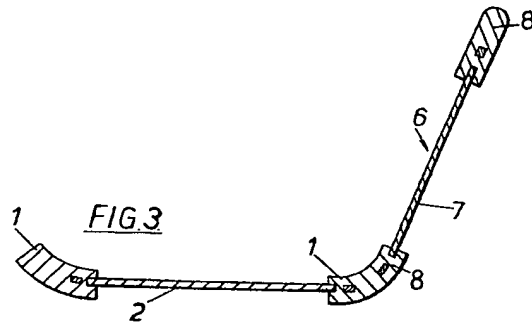
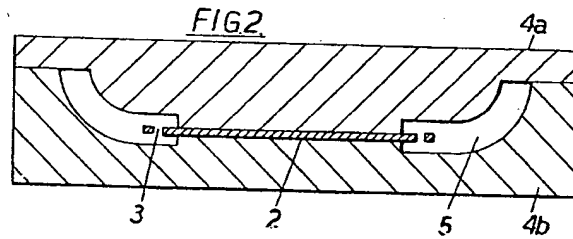
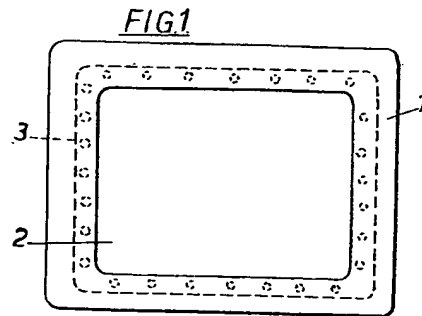
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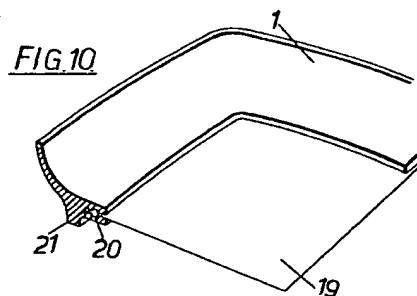
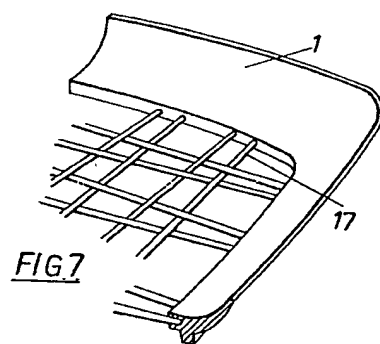
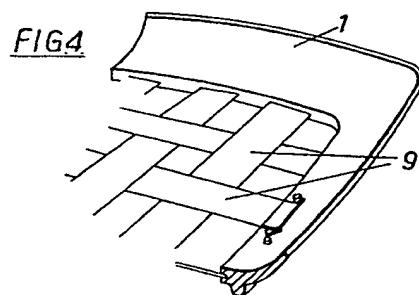


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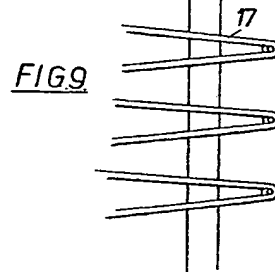
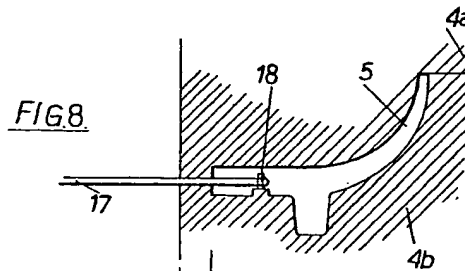
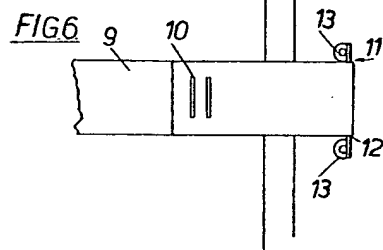
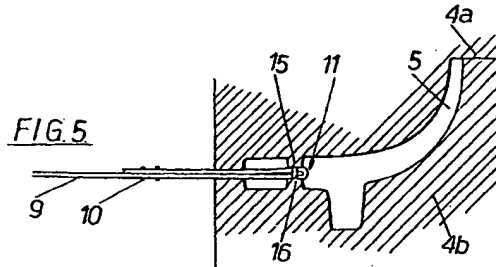
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FIG 11

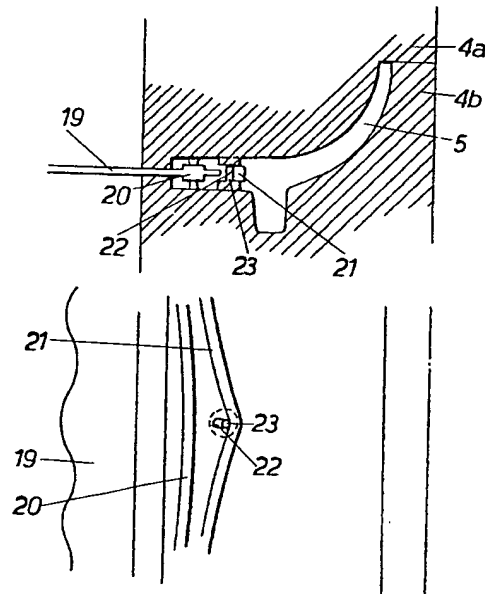


FIG 12